File: Morrison, David

NASA

National Aeronautics and
Space Administration

Washington, D.C.
20546

Reply to Attn of SL

December 14, 1977

Dr. Carl Sagan
Laboratory for
Planetary Studies
Cornell University
Ithaca, NY 14850

Carl

Dear Dr. Sagan:

This letter confirms your invitation to participate in a NASA-sponsored workshop on the Saturn system to be held in the Washington, DC area on February 9-11, 1978. We anticipate a stimulating and productive exchange of ideas, and we very much appreciate your willingness to participate.

The purpose of the Workshop is to review and assess the current state of knowledge of Saturn, the rings, Titan, and the other satellites. Emphasis is to be placed on those questions that will remain after Voyager and that can be addressed by a Saturn orbiter with Saturn and Titan probes, a mission being considered for launch in the mid-1980's. A list of specific questions that might focus the discussion is enclosed.

The Workshop is to be relatively small and to be conducted in an informal manner that encourages discussion of the issues. Our model is the Titan Workshop held at Ames in 1974, which resulted in NASA SP-340, a copy of which is enclosed. As in that meeting, we are asking a number of participants to prepare brief review papers, to be written in advance and brought to the Workshop. The nominal length for these papers is 1500-3000 words, not including figures, tables, or references. In addition, we encourage short presentations from everyone as part of the "discussion" time, and we will

transcribe this discussion for inclusion (after editing) in the Workshop report. Our goal is a small book that can serve as an introduction and review of Saturn system science, as well as preserving the flavor of discussion at this meeting.

A list of participants and tentative agenda is enclosed. The first two days will be devoted to papers and discussion; the final half day is reserved for recommendations and formulations of answers to specific questions as required by NASA. The meetings will be held at the Sheraton Reston Hotel, located near Dulles International Airport, and there will be facilities for photocopying and for dual-screen presentation of both 35mm slides and viewgraphs.

The Chairman and Vice-Chairman are, respectively, Don Hunten and David Morrison. Glenn Orton has been assigned as Study Scientist at JPL for the Saturn Orbiter Dual Probe Mission, and Al Hibbs at JPL (213/354-2430) is coordinating the physical and financial arrangements. Rooms and all meals will be provided at the Sheraton Reston Hotel, and payment of travel expenses and honoraria for non-Government participants will be handled through JPL.

If you have any questions or any ideas for improving the agenda or meeting plans, please let us know. In particular, we need a confirmation of your willingness to prepare the papers indicated in the tentative program. We want to make this as useful and pleasant a get-together as possible, and we look forward to seeing you all there.

Sincerely,

Don

Donald M. Hunten
Chairman

David Morrison
Vice-Chairman

Enclosures

KEY QUESTIONS FOR SATURN SYSTEM WORKSHOP

1. What are the most important scientific questions today concerning Saturn, Titan, the rings, and the other satellites? How do these relate to fundamental questions concerning the formation and evolution of the solar system?

2. How is our perspective likely to have changed by late 1981, following the Pioneer 11 and Voyager 1 and 2 flybys? What will be the most important scientific questions then?

3. What type of orbiter mission profile would yield the most scientific return? What should be the relative emphasis on satellites, planet, and magnetosphere?

4. How much danger to the spacecraft is likely to be caused by particles in the ring plane or by the trapped radiation belts of Saturn? Are there approaches that need to be pursued to better assess these hazards?

5. How might the science payload on the JOP orbiter be optimized for a Saturn orbiter mission?

6. What range of Saturn atmospheric models should be used in engineering studies of a probe?

7. What range of Titan atmospheric models should be used in engineering studies of a probe (or possible lander)? Will the Voyager experiments provide the required data to design a probe or lander?

8. How might the science payload on the JOP probe be optimized for a Saturn orbiter mission?

9. Is it appropriate to consider expanding the scope of an initial Titan probe to include surface science objectives? If so, what type of simple lander concept might be most promising?